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State of Utah

DEPARTMENT OF NATURAL RESOURCES

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DIV. OF OIL, GAS & MINING

April 6, 2010

Brent Sumsion
Geneva Rock Products, Inc.
PO Box 1955
Orem, Utah 84059

Subject: First Review of Notice of Intention to Commence Large Mining Operations, Geneva Rock Products, Inc., Center Creek Quarry Mine, M/051/0013, Wasatch County, Utah

Dear Mr. Sumsion:

The Division has completed a review of your Notice of Intention to Commence Large Mining Operations for the Center Creek Mine, which was received March 1, 2010. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text, so we can see what changes have been made. After the notice is determined technically complete and we are prepared to issue final approval, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval of the permit, we will return one copy stamped "approved" for your records.

The Division will suspend further review of the Notice of Intention until your response to this letter is received. If you have any questions in this regard please contact me at 801-538-5261 or Leslie Heppler, at 801-538-5257. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB:lah:vs

Attachment: Review

P:\GROUPS\MINERALS\WP\M051-Wasatch\M0510013-CenterCreek\final\REV1-3404-04062010.doc



**FIRST REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS**

**Geneva Rock Products, Inc.
Center Creek**

**M/051/0013
April 05, 2010**

General Comments:

| Comm ent # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---------------|-------------------------------|---|----------|------------------|
| ✓ 1 | Cover page | Permit number is incorrect. The correct number is M/051/0013. | lah | |

R647-4-104 - Filing Requirements and Review Procedures

| Comm ent # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---------------|-------------------------------|---|----------|------------------|
| ✓ 2 | Page 8 | "Location of Operation" at the top of the page is not numbered. | lah | |

105.2 - Surface facilities map

| Comm ent # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---------------|-------------------------------|--|----------|------------------|
| ✓ 3 | Omission | No drawing is provided for the crushing, screening & processing. | lah | |
| ✓ 4 | Omission | No stockpiles are shown, yet written in text; could rewrite text. <i>crusher, stockpile area hatched</i> | lah | |

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

| Comm ent # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---------------|-------------------------------|---|----------|------------------|
| ✓ 5 | Figure 6 | Label slope angles on the highwalls. | lah | |
| ✓ 6 | Omission | Is it the intent of the operator not to "phase the mining"? <i>No Phasing</i> | lah | |

105.4 - Photographs

| Comm ent # | Sheet/Page/ Map/Table # | Comments | Initials | Review Action |
|---------------|--|---|----------|------------------|
| ✓ 7 | Appendix A Photo O&P ; Figure 6 | The Division would prefer a constant slope angle (with no topsoil and a limited grass/sage brush mix) versus a bench slope angle (with top soiled benches and full vegetation). <i>Optional - we want benches</i> | lah | |

R647-4-106 - Operation Plan

106.8 - Depth to groundwater, extent of overburden, geology

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|---------------------------------|----------|---------------|
| ✓ 8 | Page 18 Para 1 | Reference Geologic Map in text. | lah | |

106.9 - Location & size of ore, waste, tailings, ponds

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| ✓ 9 | Page 18 Para 4 | Stockpiles are not shown on Figure 4; either change text or show stockpiles, with a note the stockpiles location might change. | lah | |

R647-4-109 - Impact Assessment

109.1 - Impacts to surface & groundwater systems

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| ✓ 10 | Omission | Watershed calculations were provided but no watershed map. Please provide a watershed map. | TM | |
| ✓ 11 | Check dam figure | Check dams need to be keyed in to the beds and banks when installed. Please add a note to the figure. | TM | |

R647-4-110 - Reclamation Plan

110.1 - Current & post mining land use

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|--|----------|---------------|
| ✓ 12 | Page 27 para 2 | Include a place holder in the Appendix for the Wasatch County permit | lah | |

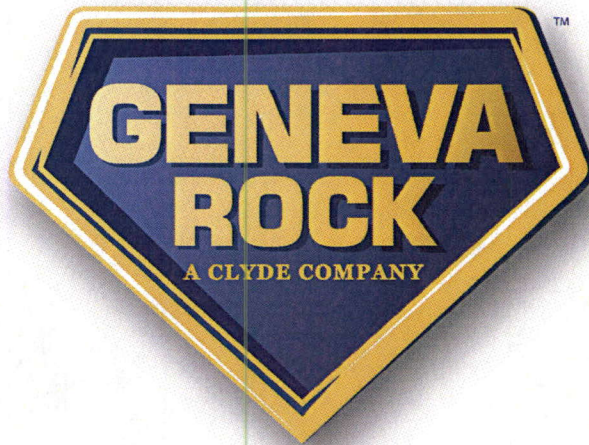
R647-4-112 - Variance

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|---|----------|---------------|
| ✓ 13 | | None requested – No information is needed | lah | |

R647-4-113 – Surety

| Comment # | Sheet/Page/Map/Table # | Comments | Initials | Review Action |
|-----------|------------------------|---|----------------|---------------|
| 14 | Appendix F Page 1 | <p>As written “95 acres;” correct to match other figures at 64 acres.</p> <p>On the page labeled “Crusher” there are three line items for removing a fuel tank. They are tank removal, handling the sludge and tank disposal. The Operator used the same Means reference number for each line item even though the costs are different. Please use the correct number for each line item.</p> <p>On the page labeled “Scale House” a cost of the truck driver must be included with dump truck.</p> | lah whw | |

**Notice of Intention
To Begin a Large Mining Operation**



**Geneva Rock Products, Inc.
Center Creek Quarry
DOGM NO. M/051/0013**

Submitted by:

Geneva Rock Products, Inc.

1565 W. 400N.

Orem, UT 84057

To:

Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

Geneva Rock Products – Center Creek Canyon Quarry – NOI

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Geneva Rock Products, Inc. – Center Creek Canyon Quarry – NOI

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Figure 2: Land Ownership Map

Figure 3: Original Contours Map

Figure 4: Mine Plan Map

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Figure 8: Soil Map

Figure 9: Geology Map

Figure 10: Crusher and Stockpile Detail

Figure 11: Watershed Map

R647-4. Large Mining Operations

R647-4-101. Filing Requirements and Review Procedures

This NOI is submitted to the Utah Division of Oil, Gas and Mining (DOGM) in compliance with part R647-4 of the Utah Minerals Reclamation program by Geneva Rock Products, Inc.

The proposed quarrying operation is located in Wasatch County, Utah, on a 64-acre parcel owned by Property Reserve, Inc.. This site has previously been mined by the LDS Church for construction aggregate used in the construction of the Heber Valley LDS Girl's Camp situated adjacent to and east of the Quarry. Portions of the proposed quarry are located in S. 24,25 of T.4S., R.5E., and S. 19,30 of T.4S., R.6E., SLBM.

R647-4-102. Duration of the Notice of Intention

It is understood that, when approved, this NOI, including any subsequently approved amendments or revisions, remains in effect for the life of the mine. However, Geneva acknowledges that the Division of Oil, Gas, and Mining (DOGM) may review the permit and require updated information and modifications when necessary.

R647-4-103. Notice of Intention to Begin Large Mining Operations

Geneva's NOI addresses the requirement of the rules listed in this section as follows:

- 104. Operator(s), Surface and Mineral Owner(s)
- 105. Maps, Drawings, and Photographs
- 106. Operation Plan
- 108. Hole plugging Requirements
- 109. Impact Assessment
- 110. Reclamation Plan
- 112. Variance
- 113. Surety

R647-4-104. Operator, Surface and Mineral Owners

1. Mine Name: Center Creek Quarry
2. Operator: Geneva Rock Products, Inc.
1565 West 400 North
Orem, Utah 84057

Phone: 801-765-7800
Fax: 801-765-7830
Email: <http://www.genevarock.com/>

Type of Business: Corporation
Utah Business Entity No.: 570716-0412
Local Business License No.: 2008088
Issued by: Orem, City

Registered Utah Agent: Al Schellenberg
1565 West 400 North
Orem, UT 84057
Phone: 801-765-7800
Fax: 801-765-7830
Email: aschellenberg@genevarock.com
3. Permanent Address: Geneva Rock Products, Inc.
1565 West 400 North
Orem, UT 84057
Phone: 801-765-7800
Fax: 801-765-7830
Email: <http://www.genevarock.com/>
4. Contact Person for Permitting, Surety, Notices:
Brent R. Sumsion
Geneva Rock Products, Inc.
P.O. Box 1955
Orem, Utah 84059
Phone: 801-208-6933
Fax: 801-641-2117
Email: bsumsion@clydeinc.com

5. Location of Operation: Portions of S.24,25 T.4S., R5E., SLB&M and
Portions of S.19, & 30, T.4 S., R.6 E., SLB&M.
6. Ownership of Land Surface: Property Reserve, Inc.
5 Triad Center, Suite 650
Salt Lake City, Utah 84180
7. Owners of Record of Mineral to be Mined:
Property Reserve, Inc.
5 Triad Center, Suite 650
Salt Lake City, Utah 84180
8. BLM Lease or Project File Numbers:
None
9. Adjacent Land Owners: S.Y. and Betty Kimball
5300 E. Center Creek Road
Heber City, Utah 84032
435-654-4858
10. Have the land, mineral, and adjacent owners been notified in writing?
No.
11. Does Permittee/Operator have a legal right to enter and conduct mining operations on the
land covered by this notice? Yes, by way of a lease with Property Reserve, Inc., the owner.

R647-4-105. Maps, Drawings, and Photographs

105.1. Base Maps: Figures 1 and 2

Figure 1 Base and Mine Location Map shows the mine area and surroundings and is printed at a scale of 1"=2000'. It shows streams, springs, water bodies, roads, buildings, topography and utilities. There are no known underground workings on the site. The only utility within the proposed permit area is an overhead power line passing along the edge of the excavation adjacent to Center Creek Road. Towards the end of the mining process some of these poles may need to be lowered 10 feet or less. They can easily be avoided for most of the extent of the mining.

Figure 2 Land Ownership Map is printed at a scale of 1"=500' and shows the property boundaries, surface ownership of the mine and adjacent lands, and access routes.

105.2. Surface facilities maps: Figures 3 and 4

Figure 3: Existing Contours Map is printed at a scale of 1"=300' and shows existing surface facilities, roads and washes that pass through or near the lands to be affected. There are no test borings, pits, or boreholes.

Figure 4: Mine Plan Map is printed at a scale of 1"=300' and shows drainage control structures and topsoil storage areas. There is no overburden or waste rock, thus no storage areas are shown. No waste water is generated in this mine, therefore no discharge areas are shown. Storm water is initially impounded in a retention pond near the entrance of the quarry, then later against the high wall in the back of the quarry.

105.3. Reclamation Treatments: Figure 5

Figure 5 is a Reclamation Treatments map. This map is printed at a scale of 1"=300'. It shows details about reclamation treatment areas, including what disturbance, such as high walls, topsoil stockpiles and roads, will be reclaimed. A border outlining the extent of the area to be reclaimed vs. the affected area is shown. While no topsoil will be spread on the high walls because they are too steep to re-vegetate, the benches will be covered with topsoil and re-seeded.

All high walls will be left at a benched 1H:1V. These areas are shown on the map. The unconsolidated top layer of alluvium will be sloped at 2H:1V. All floor slopes will be 3H:1V or less.

105.4. Additional Maps:

Figure 6 shows cross-sections and benching of the reclaimed pit.

Figure 6a shows detail on stone check dams to be used for erosion control.

Figure 7 is a Utah Division of Water Rights map printed at a scale of 1"=400' showing area water rights.

Figure 8 is a soils map printed at a scale of 1"=300' showing existing soil types.

Figure 9 is a Geology map showing the underlying geology of the mine.

Figure 10 is a sample crusher layout and stockpile map.

Figure 11 is a Water Shed Map showing the principle watershed areas.

105.5 Photographs:

Photographs of the existing vegetation and topography are included in Appendix A.

R647-4-106: Operation Plan

106.1. Mineral to be Mined

The Center Creek Quarry will produce crushed and/or screened aggregate for construction.

106.2. Type of operation to be conducted

Geneva Rock Products, Inc. (Geneva) primarily extracts aggregate rock for use as road base, landscape rock, and other construction products.

Mining Operation

It is anticipated that no blasting will be required. In the event that hard rock is unexpectedly encountered, blasting will be conducted according to the following procedures.

Geneva will remove rock from the active mine area by drilling and blasting (if necessary) and dozing methods. New disturbance occurs at the top and sides of the hill slope. The mine face has been established at this location by previous mining activity. Progression of mining will be from the existing face towards the southeast. Rock is removed by drilling and blasting (if necessary) to release a "lift" of rock approximately 50 feet deep and up to two acres in size. Extraction of this loosened rock occurs by sequentially working downward through the exposed rock. When all rock is removed from the first lift, another blast (if necessary) is set to free this lower lift of rock for removal and processing.

Rock is removed from the working face or feed zone; with a loader and either placed in dump trucks or transported directly to the processing area where the rock is separated and screened to specific sizes for further processing. The facility is a crushing and sizing operation. Sizing for the final product is determined by specifications provided by customers. All haul roads will be confined within the disturbance boundaries .

Crushing Operation

Once the rock is removed from the working face, the material is brought a short distance to the primary crusher by a front-end-loader where it is broken down to 6-8" for initial sizing. The crushed rock is moved by conveyor to a secondary crusher and screens for additional sizing. Any oversize aggregate not meeting desired sizes is directed by conveyor to a tertiary crusher. The aggregate from the tertiary crusher is then directed back up to the 3-deck screens in a

closed circuit. The crushing plant is controlled by motor control circuitry located in the control tower manned by the crusher operator.

The finished products come out of the crushing plant and are conveyed or moved by loaders to the aggregate stockpiles where they are stored until sold. When an order is placed for a particular size aggregate, it is loaded into trucks for delivery to the customer or transported to either the concrete plant or asphalt plant for further processing. All conveyors are equipped with spray bars that spray water at drop points to control fugitive dust.

Blasting Practices

If blasting is needed, ~~it is~~ not conducted by Geneva, but is subcontracted out to a qualified company trained in blasting design and practices. All blasting will be done in accordance with MSHA regulations. Unless needed, no seismic monitoring of blasting will be done at the Center Creek Quarry.

Blasting rounds include down-hole primers, detonator cords, and Ammonium Nitrate-Fuel Oil (ANFO) pellets. Typical blasting design is 50 to 100 holes drilled 50-100 feet deep. It is estimated that each hole will be set on a 13ft. X 13 ft. grid.

Before blasting occurs, the tower sounds a warning siren to alert all personnel of impending blast; at which time all personnel and equipment are removed from quarry area. The siren is then sounded again and the blaster turns on his emergency flashing lights. The blast is then detonated. No one enters the blasting zone until the blaster gives an all-clear whistle.

Concurrent Reclamation

No reclamation will take place within the first 20-year block. Increased production will force utilization of all additional mined-out acres for staging, sorting, or processing. Reclamation will begin once sufficient room has been generated to accommodate all future operations or the quarry is mined out. Reclamation is discussed in Section 110 below.

106.3. Estimated Acreage

Approximately 64 acres will be disturbed over the life of the mine. This figure includes all access roads, storage piles, processing areas and mine areas. There are presently about 13 acres of previously disturbed mine area.

Table 1: Areas to be affected during the next 40- years, and over life of Mine

| Area | Total Affected Acreage | Description and Notes | Total Cubic Yards of Topsoil Salvaged |
|--------------------------------------|------------------------------|---|--|
| Existing Mine Disturbance | 13 | Pre-existing disturbance | 10,487 |
| Areas of new mining disturbance | 51 | To be disturbed in 1-40 years | 41,140 |
| Overburden and waste dumps | 0 | All mined materials are processed and sold | 0 |
| Total 40-year disturbance | 64 | | 51,627 |

106.4. Nature of material, including waste rock/overburden, and estimated tonnage

Ore

It is impossible to estimate the demand for aggregate from this source each year. There may be as little as just a few thousand tons to over a million tons removed in a year's time. Demand for aggregate product is governed by regional economic pressures and the varying needs of the LDS Girls Camp. Sufficient acreage has been bonded to provide a cushion against periods of high demand.

Historic Mining

Mining has occurred at the subject location since the early 1990's. Harper Contracting leased the property from the previous owner and did the initial mine development. Later the property was sold to the Church of Jesus Christ of Latter-Day Saints and since then, the mine has been largely used to supply aggregate products to the Heber Valley LDS Girls Camp. The quality and durability of the aggregate make it very useful as road building and construction aggregate.

106.5. Soils

All existing topsoil will be removed and stored in a stable condition, and used for reclamation of disturbed areas.

Soils map units are shown on **Figure 8, Soils**. Samples of the top 6-inches of soil were collected at Point TP-1, through TP-6 at random locations to represent the diversity of soils located on the mine property. These samples were taken to characterize soils in preparation for future soil salvage. The sample locations are shown on **Figure 8**. Analytical sampling results are shown in **Table 2** below.

Table 2: Analytical Results of Fall, 2009 Soil Samples, Top Six Inches of Soil*

| Soil Parameter | TP#1 | TP#2 | TP#3 | TP#4 | TP#5 | TP#6 | Units |
|------------------------------------|------|------|------|--------------|--------------|--------------|--|
| Texture | Clay | Loam | Loam | Clay Loam | Clay Loam | Clay Loam | Uniform Soil Classification |
| pH | 6.35 | 6.40 | 6.36 | 6.38 | 6.25 | 6.16 | @25°C, pH units |
| SAR(sodium absorption ratio) | 0.64 | 0.43 | 0.55 | 0.62 | 0.56 | 0.59 | |
| Percent Organic Matter | 2.35 | 2.26 | 2.95 | 7.21 | 5.02 | 6.01 | Total Volatile Solids as % of total |

| | | | | | | | |
|------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| | | | | | | | sample |
| Nitrate Nitrogen | 3.17 | 2.16 | 1.41 | 5.08 | 2.92 | 3.27 | ppm |
| Phosphorus (as P) | 34.24 | 30.50 | 26.66 | 33.83 | 24.49 | 15.96 | ppm |
| Potassium (as K ₂ O) | 291.20 | 454.40 | 320.00 | 358.40 | 313.60 | 204.80 | ppm |

The texture of all soil samples were consistent from top to bottom.

There are four soil types within the quarry boundary. These are the Henefer Soils, 25 to 50% slopes, Rasband Loam, 3 to 10 percent slopes, Wallsburg-Rock outcrop complex, 20 to 60 % slopes, and the Watkins Ridge-Deer Creek complex, 15-25% slopes. (USDA NRCS, 2006). These soils are described in **Tables 3 and 4** below. **Figure 8** shows the locations of these soils within the mine area.

Table 3: Soil Descriptions for Center Creek Mine

| Soil Type | Brief Map Unit Description | Ecological site | Forage Productivity: high, normal, low years |
|---|---|--|--|
| Henefer Soils, 25-50 % slopes | Mountainsides component. Parent material is alluvium/colluviums derived from sedimentary rock. Well drained. Depth to lithic <60inches, CaCO ₃ max at 0%, Gypsum max at 0%. Avail. water cap. low. | Mountain Loam (Mountain Big Sagebrush) | 2,600 lb/ac, 1,800 lb/ac, 1,200 lb/ac |
| Rasband Loam complex, 3-10% slopes | Component is on stream terraces. Parent material is alluvium derived from andesite. Depth to lithic bedrock: <60 inches. CaCO ₃ max at 0%, Gypsum at 0%. | Mountain Loam (Mountain Big Sagebrush) | 2,600 lb/ac, 1,800 lb/ac, 1,200 lb/ac |
| Wallsburg-Rock outcrop complex, 20-60% slopes | Mountainsides component. Parent consists of colluviums over residuum weathered from sedimentary rock. Depth to lithic contact 12-20". Well drained. No flooding. CaCO ₃ max at 3%, | Mountain Shallow Loam (Mountain Big Sagebrush) | 1,800 lbs/ac, 1,600 lb/ac, 1,400 lb/ac |

| Soil Type | Brief Map Unit Description | Ecological site | Forage Productivity: high, normal, low years |
|--|---|---|--|
| Watkins Ridge- Deer Creek complex, 15-25% Sopes | Component is on ridges and swales. Parent material colluvium and or slope alluvium derived from sedimentary rock. Depth to lithic <60". No flooding. Well drained. CaCO3 max at 60% | Mountain Loam (Mountain Big Sage Brush) | 2,600 lbs/ac, 2,000lb/ac, 1,200lb/ac |

Table 4: Soil physical and chemical characteristics based on NRCS data

| Soil Type | Topsoil depth | Total Depth | CEC (meq /100g) | pH | SAR | CaCO3 % | CaSO4 % | Na Mmhos /cm | Limitations |
|--------------------|---------------|-------------|-----------------|---------|-----|---------|---------|--------------|-------------|
| Henefer | 0-12" | <60" | 15-20 | 7.1-7.3 | 0 | 0 | 0 | 0 | Bedrock |
| Rasband | 0-12 | < 60" | 5-25 | 6.1-7.3 | 0 | 0 | 0 | 0.0-2.0 | Bedrock |
| Wallsburg | 0-12" | 0-16" | 10.0-25.0 | 6.6-7.3 | 0 | 0-3 | 0 | 0 | Bedrock |
| Watkins/Deer Creek | 0-12" | <60" | 20.0-30.0 | 6.1-7.8 | 0 | 0-3 | 0 | 0.0-2.0 | Bedrock |

106.6. Plans for protecting and re-depositing soils

It is estimated that 64 acres of mining disturbance will occur in the next 40 years. At a 6 inch salvage depth, a minimum of 51,627 cubic yard of topsoil (see table 1) will be salvaged from this area. The stated acreage of the pit is horizontal plane acreage whereas the actual surface area acreage is much greater due to the considerable terrain variations that exist on the site. Therefore the actual harvested topsoil should be much greater than the minimum stated above and there should be ample topsoil to cover the disturbed areas. All topsoil stockpiles will be surrounded by a berm to protect against soil loss.

Topsoil and vegetation (made up mostly of grasses, and brush) will be removed together using bulldozers, front-end loaders, and 14-ton to 45-ton dump trucks. Vegetation at the mine site will add negligible volume to soil stockpiles.

More detail on topsoil stripping and protection is included in Sub-section 109.3 below.

106.7 Existing Vegetative communities to establish re-vegetation success

The project area ranges from 6,325 feet elevation at the northwest corner to 6,810 feet elevation at the highest knob towards the center of the proposed mine. The mine area will excavate into a minor ridge of the mountains flanking Center Creek Canyon. Color photographs included in Appendix A show the current conditions at the mine site.

According to the NRCS Ecological Site description (See Table 3 above), the area to be mined is in the Mountain Shallow Loam (Mountain Big Sagebrush) Ecological site. Expected composition of this range site on an average year is listed in Table 6 below.

Table 6: Expected plant species by percent composition for the Mountain Stony Loam Range Site

| <u>Scientific name</u> | <u>Common name</u> | <u>Composition</u> <u>(%)</u> |
|-------------------------------------|------------------------|----------------------------------|
| Shrubs, Trees, and Sub Trees | | |
| <i>Artemisia tridentata</i> | Mountain big sagebrush | 25 |
| <i>Purshia tridentata</i> | Antelope bitterbrush | 10 |
| <i>Symphoricarpos oreophilus</i> | Mountain Snowberry | 5 |
| | Other perennial shrubs | 5 |
| Forbs | | |
| | Perennial forbs | 5 |
| Grasses | | |
| <i>Pseudogroegneria spicata</i> | Bluebunch wheatgrass | 20 |
| <i>Pascopyrum smithii</i> | Western Wheatgrass | 5 |

A quantitative vegetative inventory was conducted by Dr. Ronald J. Kass, Professional Wetlands Scientist and Botanist. He estimated live canopy cover of shrubs, forbs and grasses by species. The vegetation analysis was done by ocular reconnaissance, walking throughout the project area and estimating cover by species (see Appendix B). **Table 7** below is a list of the most abundant species on the site.

Table 7: Plant species recorded during the Nov. 9, 2009 Vegetation Survey

| | <u>Scientific name</u> | <u>Common name</u> | <u>Life Form</u> | <u>% Cover</u> |
|--|---------------------------------|--------------------|------------------|----------------|
| | <i>Quercus gambellii</i> | Gambel Oak | Shrub | 14.8 |
| | <i>Bromus Tectorum</i> | Cheatgrass | Grass | 8.9 |
| | <i>Artemisia tridentata</i> | Big Sagebrush | Shrub | 6.6 |
| | <i>Juniperus osteosperma</i> | Utah Juniper | Shrub | 6.0 |
| | <i>Poa secunda</i> | Sandberg bluegrass | Grass | 3.4 |
| | <i>Symphiorcapos oreophilus</i> | Snowberry | Shrub | 3.9 |

106.8. Depth to Groundwater, Overburden material, and Geologic Setting

Groundwater

The closest groundwater rights are two wells located within 300 to 500 feet of the west perimeter of the mine. These wells are situated in the bottom of Center Creek Canyon in the alluvial outwash from the neighboring mountains (See **Figure 7**). The well heads are at about 6320 feet in elevation or about 5 feet lower than the lowest proposed final build out elevation of the quarry, which is about 6325 feet. The drill logs for these wells indicate static water level at 5 to 12 feet below the surface. See drill logs in Appendix D. This would indicate a minimum distance of elevational separation from the water table of at least 10 feet. To date, there has been no instance of groundwater surfacing within the existing mine footprint.

Overburden Material

Other than the top six inches of material set aside for the reclamation purposes as topsoil, all other material is sold as various aggregate products. No overburden, reject materials, or waste materials are produced.

Geology of the area

The underlying geology of the Center Creek Quarry is part of the Oquirrh Mountain Formation (**Figure 9**). The Oquirrh Formation in this area is comprised of a series of silty sandstones, quartzites and cherty limestones. A quarry is present on Property Reserve, Inc. property in Section 24 within the Oquirrh Formation, which is being mined in the lower basal unit in the HD Range, Riva (1970) mapped nearly 2,000 feet of lower Permian (Wolfcampian) section near Blanchard Mountain which he assigned to the Miller Canyon Section.

This Permian section is cut by numerous high-angle faults and is intruded by the Contact pluton, and was divided into 4 informal units (Riva, 1970). The basal unit is about 600 feet of thin to medium-bedded, light to dark-gray or black sandstone, silicified siltstone and shale and thin limestone beds which weathers light brown to dark gray as a unit. Overlying this, is about 210 feet of unit 2 which is composed of dark gray limestone that is sandy and cross-bedded near the base and regularly bedded and less sandy near the top. The limestone contains crinoids, tabulate corals and fusulinids (Riva, 1970). Unit 3 is about 750 feet of fine-grained, medium to thick-bedded, reddish-weathering quartzite and lesser gray limestone, with alternating black and white quartzite with several thick limestone beds in the lower 200 feet of the formation. The uppermost unit is thin-bedded and brittle, black siltstone which is about 310 feet thick (Riva, 1970).

106.9. Location and size of ore and waste stockpiles, tailings and treatment ponds, and discharges

Waste/Overburden Stockpiles

Raw materials consist of rock that has been removed from the hillside. Other than the top six inches of material that is set aside for reclamation purposes as topsoil, all rock material removed from the hillside is used to create aggregate products according to customer specifications. No waste rock is generated.

Material Stockpiles

There are several stockpiles of sorted and sized rock products stored on site. The general, current, and future locations of these stockpiles are shown on **Figure 4**. A list of stockpiles and maximum expected volume of each is found in **Table 8** below.

Table 8: Stockpiles and Estimated Max. Volumes for the Center Creek Quarry

| Stockpile Material | Maximum Tonnage | Stockpile Material | Maximum Tonnage |
|-----------------------|-----------------|-----------------------|-----------------|
| Road Base (1" dia.) | 100,000T | 2" Drain Rock | 25,000T |
| Sub-base (3" dia.) | 50,000 T | Basket Rock (8" dia.) | 10,000 T |
| Chip Rock (0.5" dia.) | 10,000 T | 1" Drain Rock | 25,000T |

Maximum total stockpile Tonnage= 220,000 tons

Tailings

No Tailings will be produced at this mine.

Water Storage/Treatment Ponds

Water for dust suppression, crushing and screening will be hauled or piped to the quarry from a nearby water source provided by the owner. The water right number of one of the possible sources is 55-8221. Water will be stored in a tank on site until ready for use. Water will be used for dust control in the crushing, aggregate processing and on roads. It will be absorbed into the gravel and sand, leaving no excess water for run-off. However, in the unlikely event that run-off from the crusher/screening area occurs, water will be directed to the storm water retention basin.

Any storm water run-off coming from affected lands will be collected in the storm water retention basin or within the quarry confines, which, at a minimum, will be sized for the 10-year, 24-hour event, and will be located at the northeast (lowest) corner of the property, just east of the Center Creek Road (county road). This retention pond is discussed in more detail in 109.4.

Discharges

Currently any water used for dust control or concrete batching will be hauled in from off site sources. No waste water discharges will occur at this site.

R647-4-107. Operation Practices

As required, the relevant Operation Practices stipulated in R647-4-107 will be followed.

R647-4-108. Hole Plugging Requirements

There are no plans for future drilling within the permit area for exploration. If drilling for any reason other than blast hole drilling is planned in the area, Geneva will notify DOGM and the following procedures will be employed.

- Drill holes shall be properly plugged as soon as practical and shall not be left unplugged for more than 30 days without approval by DOGM.
- Dry holes and non-artesian holes that do not produce significant amounts of water may be temporarily plugged with a surface cap to enable Geneva to re-enter the hole for the duration of said operations.
- Surface plugging of drill holes outside the mine area shall be accomplished by setting a nonmetallic permaplug at a minimum of five (5) feet below the surface, or returning the cuttings to the hole and tamping the returned cuttings to within five (5) feet of ground level. The hole above the permaplug or cuttings will be filled with a cement plug. If the cemented casing is to be left in place, a concrete surface plug may not be required if a permanent cap is secured on top of the casing.
- Drill holes that encounter water, oil, gas or other potential migratory substances and are 2.5 inches or greater in surface diameter will be plugged in the subsurface to prevent the migration of fluid from one stratum to another. If water is encountered, plugging shall be accomplished as outlined below.
- If artesian flow (i.e. water flowing to the surface from the hole) is encountered during or upon cessation of drilling, a cement plug will be placed to prevent water from flowing between geologic formations and at the surface. The cement mix will consist of API Class A or H cement, with additives as needed, and will weigh at least 13.5 lbs./gal. It will be placed under the supervision of a person qualified in proper drill hole cementing or artesian flow.
- Artesian bore holes will be plugged as described prior to removal of drilling equipment from the well site.
- If the surface owner of the land affected desires to convert an artesian drill hole into a producing and/or monitor well, the landowner will provide written notification to DOGM accepting responsibility for the ultimate plugging of the drill hole.
- Holes that encounter significant amounts of non-artesian water shall be plugged by: 1) placing a 50-ft cement plug immediately above and below the aquifer(s) or filling from the bottom up (through the drill casing) with a high grade bentonite/water slurry mixture. The slurry shall have a Marsh Funnel viscosity of at least 50 seconds per quart prior to the adding of any cuttings.

R647-4-109. Impact Statement

109.1. Surface and ground water systems

Surface Water

No perennial streams or intermittent waters have been or are expected to be impacted by mining operations at the Center Creek Quarry. Any precipitation and/or run-off into the quarry from sheet flow, which enters the quarry from the hillside above, will be contained within the quarry and be collected either in a retention pond or along the quarry face. Because this feature is so small and has no defined channels, a generalized run-off calculation was developed for the active mine, and is summarized Table 9 below:

Table 9: Runoff Rate and Volume Estimates for the 10-year, 24-hour Storm Event

| Location | Watershed Area (Acres) | Time of Concentration (hrs) | Watershed Curve Number | Peak Discharge (cfs) | Estimated Runoff Volume (Ac-Ft) |
|------------------|------------------------|-----------------------------|------------------------|----------------------|---------------------------------|
| Pit and up slope | 81 | 0.53 | 65 | 3.880 | 1.03 |

Modeling assuming the 10-year, 24-hour precipitation event (with a depth of 2.06 inches), as derived from the NOAA Atlas 14 (National Weather Service 2006).

Once inside the quarry, water disperses across the quarry floor. Areas used for stockpiles, crushers and processing facilities are graded to be higher than surrounding areas to prevent contamination of stormwater within the quarry. In addition, the working platform that makes up the quarry floor area (see Figure 4) are bermed to meet MSHA regulations, and thus act as a containment area where runoff is contained. This approximately 13 acre area, has the capacity to contain much more water than would ever accumulate in a 100 year storm.

Surface water flowing off slopes north and east of the active quarry area, drain into disturbed lands and is channeled into the stormwater retention basin or against the quarry face where it either percolates or evaporates.

If erosion or sedimentation is observed on lands where drain lines are located, Geneva commits to using appropriate water and erosion control measures. This includes, but is not limited to: dirtberms, small (<0.1 acre-foot) sediment retention sumps, and rock check dams see Figure 6a.

The closest groundwater rights that will provide reasonable information about depth to groundwater at the mine site are located in Section 24 of T4S, R5E. These are at a similar elevation and geology as the currently disturbed portion of the mine. Based on information provided in Section 106.8, no impacts to groundwater are anticipated.

All fuel, oil, and solvents will be stored in approved tanks in lined retention areas located within the process facilities area to prevent pollution to storm water run-off. In addition, a sediment pond sized for the 10-year, 24-hour event will be constructed to contain any sediment or pollution laden waters generated by the mine. These protective measures are discussed more thoroughly in the Storm water Management Plan.

Ground water

No ground water is expected to be encountered during future mining activities.

The major activities on the mine property that could impact groundwater if residues were to reach this resource are: 1) blasting (will occur up to 50 times per year); 2) presence of diesel fuel, lubricants, etc. used in the heavy equipment used at the mine, 3) presence of additives used in the concrete batch plant, and 4) human wastes, which are processed through chemical toilets, which are serviced regularly. In summary:

- Good housekeeping practices and careful operating procedures are used to minimize fuel and lubricant spills. Fuel and lubricants are stored in above ground tanks that have secondary containment that protect against spills.
- Crushing equipment and vehicles are regularly maintained to prevent lubricant leaks and other malfunctions.
- The quantities of blasting materials used create negligible quantities of nitrates that, in the unlikely event that they reached the groundwater, would be well below water quality limits.

109.2. Wildlife habitat and endangered species

The project area ranges in elevation from 6,325 feet at the northeast corner to 6810 feet towards the center of the mine area. The mine area will excavate into a minor ridge on the east side of Center Creek Canyon near Blanchard Mountain,

Maps in the Utah Conservation Database (UCD), located at <http://dwrcdc.nr.utah.gov/ucdc/>, indicate that the project area does contain significant habitat for mule deer, elk and moose, but no pronghorn.

The UCD website lists five species listed as Utah Threatened or Endangered (T&E) Species that may be present in Wasatch County and 23 Species of Special Concern (SPC). The T&E species are listed below in Table 10, below. None of these species are found within the permit area.

Table 10: Threatened, Endangered, and Candidate Species of Wasatch County that could be present in the project area*

| Common Name | Scientific Name | Status | Habitat Present at Center Creek Quarry |
|----------------------|------------------------------|-----------------|--|
| Ute Ladies'-Tresses | <i>Spiranthes diluvialis</i> | T | No - too dry |
| Clay Phacelia | <i>Phacelia argillacea</i> | T | No – Soil conditions not right |
| Yellow-billed Cuckoo | <i>Coccyzus americanus</i> | C | No – too high in elevation |
| Brown (Grizzly) Bear | <i>Ursus arctos</i> | T Extirpated | No - extirpated |
| Canada Lynx | <i>Lynx Canadensis</i> | T | |

* Information collected July 1, 2008 at <http://dwrcdc.nr.utah.gov/ucdc/>

The site was surveyed for Threatened and Endangered (T&E) Species on Nov.9th, 2009 by Ron Kass, Ph.D., Biologist and Professional Wetland Scientist and he determined that there were no T&E plant or animal species on the site (see letter in Appendix D).

109.3 Existing Soil and Plant Resources

After 40 years of mining, approximately 51,627 CY of soil will be stored from the mining operation for reclamation as shown in **Figure 4**. All topsoil piles will be a maximum of 10 feet high and have 1.5H:1V slopes and a flat to slightly arched top. A 1-foot high X 3-foot wide berm with interior ditch will be constructed around each topsoil stockpile area using material bucked up from the land surface where the topsoil pile is located. The ditch will catch and retain any soil that sloughs off the stockpile, and the berm will prevent contamination and erosion from storm water.

One long topsoil stockpile will be constructed in the mining area paralleling Center Creek Road over the span of the mining operation ultimately covering an area of about 3.3 acres.

Substitute topsoil material may be developed to augment the topsoil resources available. This substitute material would include a mix of natural or crushed fines, small rock, and pit run material; imported manure and/or organic matter (i.e. agricultural field refuse, wood chips,

bran or wheat chaff); and fertilizer to enhance fiber breakdown. This material would be stored and spread separately from actual topsoil resources.

The newly stockpiled soil will be seeded in the fall of each year with a quick-growing cover of grass and legumes in order to minimize erosion. This seed mix, listed in Table 11, will be broadcast at a rate of 14.5 lbs./acre PLS (pure live seed).

Table 11: Seed Mix for Topsoil Stockpiles

| Seed Species | | PLS* |
|--------------------------------|--------------------------|-----------------|
| Scientific Name | Common Name | Pounds Per Acre |
| <i>Elytrigia intermedia</i> | Intermediate Wheatgrass | 2.5 |
| <i>Psuedoroegneria spicata</i> | Bluebunch Wheatgrass | 2.5 |
| <i>Achantherum hymenoides</i> | Indian Rice Grass | 2.00 |
| <i>Elymus elymoides</i> | Bottlebrush Squirreltail | 1.50 |
| <i>Poa sandbergii</i> | Sandberg Bluegrass | 1.50 |
| <i>Medicago sativa</i> | Alfalfa | 0.75 |
| <i>Agropyron cristatum</i> | Crested Wheatgrass | 2.5 |
| <i>Hedysarum boreale</i> | Northern sweetvetch | <u>1.25</u> |
| | Total | 14.50 |
| *PLS = pure live seed | | |

The size of the area stripped in front of the mining and storage areas will be minimized to limit dust generation and the establishment of noxious weeds. At the same time, the stripped area will be large enough to allow equipment to operate on the stripped lands, and contain within the stripped area all fly-rock that could occur from blasting. Flyrock-will be minimized by proper stemming to confine the blast energy. Please see subsections 106.5 and 106.6 for more information about topsoil.

All areas disturbed by Geneva disturbance will be reclaimed at the end of mining by regrading (ripping compacted surfaces where necessary), topsoiling, and re-seeding as described in Section 110. The goal is to create a self-renewing, perennial vegetation cover similar to native conditions.

109.4. Slope stability, Erosion Control, Air Quality, Public Health and Safety

Slope Stability

The rock at the Center Creek Quarry is a massive quartzite deposit of Pennsylvanian/Permian age. During mining, all active high walls will be maintained at 40-foot high walls set back on a 15-foot batter with 25-foot benches. The overall slope of these benched high walls will be 1H:1V. The thin layer of unconsolidated alluvium on top of the lithic formation will be sloped at a 2H:1V along the mine perimeter. Geneva inspects all high walls two times per month. A more extensive high wall inspection is conducted yearly with the MSHA inspector. A factor of safety of 1.25 or greater will be maintained at all times on slope stability. If problems occur with the planned 1H:1V slope, a geologic study will be performed to determine a safe slope configuration.

Please refer to R647-4-110.2, Reclamation Plan – High walls, for further information on slope stability during reclamation.

Erosion Control

Due to the small area of the watershed, very little run-off is expected from drains or overland flow in or near the mine area. If erosion or sedimentation is likely on down-slope, native lands to the east or north of the disturbed mine area, rock check dams or berms will be erected at the edge of disturbance to keep sediments from draining onto these areas. If overland flow originating from native lands up-slope of the mine (to the east) occurs, this water will be diverted, if possible, around the affected area by the MSHA-required safety berms constructed along the highwall. Otherwise it will be concentrated in specific drain lines coming into the quarry and into the retention basin. Any erosion or sediment produced on mine-affected lands will be contained within the quarry.

The quarry floor will eventually have a slight slope to the east (toward the quarry face). This negative slope will cause all stormwater entering the quarry to remain there until evaporated or absorbed into the ground. Until the quarry face gets fully developed, a sediment pond sized for the 10-year, 24-hour event (2.06 inches) will be constructed to catch stormwater and/or mining-related sediments generated at the beginning of mining activity. All water that collects in the quarry will be held in this pond, constructed at the northeast corner of disturbance. The

pond is designed to hold approximately 243 % of this event, and will initially be constructed to hold 2.5 acre feet or 815,000 gallons. This pond will be approximately 0.5 acres in surface area, with an average depth of 5 feet.

Erosion of dirt and dust from roads will be controlled by graveling the road, and grading it to have sufficient crown and drainage ditches to the side so that water does not pond. Sufficient turn-outs from road ditches will be provided to allow water collecting on the road to be released in a non-erosive manner. Erosion protection for soil stockpiles is addressed under **Soils**, above.

Erosion will be minimized on reclaimed lands by conducting reclamation activities on the contour, with the use of benches and berms on highwalls, and by seeding at the first appropriate time after topsoil spreading.

Air Quality

An existing permanent site State of Utah Division of Air Quality Approval Order exists for this site in the name of W.W. Clyde & Co. This will be changed to the name of Geneva Rock and will be the permit that Geneva's crusher will operate under when it operates in this quarry. A copy of this permit is included in Appendix E.

Public Health and Safety

Geneva Rock Products will minimize the hazards for public safety and welfare during operations. These measures include:

- No mining shafts or tunnels exist on the site. All buildings, silos, conveyors, and other facilities and equipment are signed to discourage unauthorized or accidental entry in accordance with MSHA regulations.
- A gate at the single access road on the northwest corner of the quarry will be locked when the site is not operating. The perimeter of the permit area will be fenced to prevent unauthorized entry into the permit area during both operating and non-operating hours.
- Trash, scrap metal, wood, and extraneous debris is disposed of in marked containers that are picked up monthly and disposed of at the Utah County Solid Waste Transfer Facility.
- Although none are planned, any exploratory or other drill holes will be plugged and/or capping of as set forth in Rule R647-4-108.
- Appropriate warning signs will be located at public access points, and every 300 feet along the east boundary.

- All deleterious or potentially deleterious material, such as fuel tanks and supplies of lubricants and oils, are kept in one bermed storage area to minimize and control adverse environmental effects.
- Used lubricating and hydraulic oils are collected in designated above ground tanks and drums and held for collection by used oil distributors who process it into burner fuels.

R647-4-110. Reclamation Plan

110.1. Current Land Use and Post-Mining Land Use

The current land use of the Center Creek Quarry is road construction aggregate quarrying and wildlife habitat. The future use after reclamation will be rangeland and wildlife habitat. The area is currently zoned P-160 which is a preservation zone intended to preserve uses predating the current zone districts established by Wasatch County. This zoning allows mining, rock crushing and processing of aggregate materials . A Conditional Use Permit (CUP) is existing with Wasatch County for this quarry.

110.2. Reclamation of Roads, High walls, Slopes, Leach Pads, Dumps, Etc.

Roads

Upon completion of mining, the main access road into the quarry and all ancillary roads that service stockpiles and the crusher will be graded to blend with the planned final contours and drill seeded as described in reclamation of benches and quarry floor below.

High walls

As mining progresses southeast, sidewalls will be graded to an overall slope of 1H:1V to reach their final configuration, with 40 foot high walls laid back 15 feet, and 25-foot wide benches in between. All high walls will also be left at this configuration. If mining ceases before the full extent of the quarry is developed, all exposed working faces will be reclaimed to the 40/15/25 configuration noted above.

Slopes & Quarry Floor

Bench surfaces, which become fractured due to blasting and ripping during mining, will create a somewhat friable, rough surface that will hold topsoil and seeds in place. Benches will be 25 feet wide. Highwall berms will be left along those portions of the highwall and sidewall rim that are over five feet high .

Once mining is completed on the quarry floor, any remnants of material stockpiles will be graded across the quarry floor. The quarry floor will be graded as necessary using self-loading scrapers and a road grader to create a slightly rolling surface (bond calculations assume an average of six inches of material moved per acre). The floor will then be ripped to a depth of 18" to relieve compaction and encourage root penetration prior to topsoiling. Ripping the quarry floor will create a rough surface to lay topsoil upon. This will help prevent soil erosion and will aid in revegetation efforts by creating small depressions to catch and hold rain and snowmelt and provide wind protection for seeds.

Topsoiling and seeding of benches and the quarry floor is discussed under 110.5 below.

Impoundments, Pits and Ponds to be Left

Water control structures such as ditches, berms and water turn-outs associated with drain lines coming from outside the disturbance limits will be left in place. Road reclamation is explained under Roads, above.

The sediment sump/stormwater retention basin at the northeast end of the mining area, constructed to collect runoff from the stockpile and processing area, will be backfilled and graded to blend with surroundings. This work will be the last area reclaimed to minimize the chance for off-site sedimentation. The area will be prepared and seeded as part of the quarry floor as noted above.

Drainages

Any drainages flowing over the high-walls into the quarry depression will be lined with 4" x 8" rock in the alluvial cap section to prevent erosion .

Dumps, Shafts, Adits and Leach Pads

No waste material will be generated, therefore no reclamation of dumps will need to be completed.

There are no shafts, adits or leach pads on the property and none will be constructed.

Drill Holes

If drilling occurs, holes will be properly plugged and sealed as required in Section R647-4-108.

110.3. Surface Facilities to be left

No access roads will be left unreclaimed at the completion of the quarry.

No structures will be left. All facilities will be reclaimed. A list of structures to be reclaimed is included in the Demolition section of the Surety Calculations located in Appendix F.

All facilities will be demolished after salvaging metals and removing insulation, tile, etc. Concrete will be broken up and buried on site. Other materials will be hauled to, and disposed of, in a licensed landfill.

110.4. Treatment, location, and Disposition of Deleterious Material

Potentially hazardous insulation, tile, and non-salvageable debris from demolition will be disposed of in a licensed landfill. All tanks will either be removed to a licensed landfill upon completion or relocated. The surety calculations contained in Section 113 assume these items are disposed of at the Utah County Solid Waste Transfer Station located in Lindon.

All conveyors, crushers, screens and other equipment used for mining and processing of aggregate will be removed upon completion or sold. The surety calculations contained in Section 113 assume these items are disposed of at the Western Metals Recycling Center in Salt Lake City.

110.5. Re-vegetation Planting Program and Topsoil Re-distribution

After final shaping and grading of the quarry floor, slopes, and roads within the disturbed area, surfaces will be ripped and/or scarified on the contour to relieve compaction.

Soil Material Replacement

Topsoil and topsoil substitute material (described under Sub-section 109.3) will be spread on the quarry floor and plant area using self loading scrapers to place soil, and a grader to spread soil. Topsoil will be spread to a depth of six inches. Marked lath will be used to guide dozer operators to the correct topsoil depth. Topsoil will be placed 6" deep on high wall benches where possible. The steep slopes between the benches will not be covered with topsoil or reseeded.

Seed Bed Preparation

Prior to spreading any topsoil or topdressing, stockpiles will be tested for organic matter, Nitrogen, Phosphorus, and Potassium. If these levels are low, composted manure will be applied to the topsoil or topsoil substitute after it is spread.

Topsoil will be laid down with a scraper and, if needed, composted manure at 10 ton/acre will be spread. All surfaces will be scarified along the contour with a road grader to assure mixing

of the soil and manure to create consistent-textured soil and a roughened surface that will hold the seed and moisture for best germination.

Seed Mixture

Table 12 below provides the seed mixture that will be used in reclamation on all bonded, disturbed areas at the Center Creek Quarry that are 3:1 or flatter, including highwall benches. The percentages listed are for a drilled seed application.

Table 12: Reclamation Seed Mix for the Center Creek Quarry

| Common Name | Scientific Name | PLS Pounds/Acre |
|--------------------------|--|-----------------|
| Thickspike wheatgrass | <i>Agropyron dasystachum</i> | 1.5 |
| Bluebunch wheatgrass | <i>Agropyron spicatum</i> | 1.5 |
| | | |
| Intermediate wheatgrass | <i>Agropyron intermedium</i> | 1.5 |
| 'Piute' orchard grass | <i>Dactylis glomerata</i> | .4 |
| Basin Wildrye | <i>Elymus cinereus</i> | 1.5 |
| Ladac Alfalfa | <i>Medicago sativa</i> | 0.4 |
| Yellow sweetclover | <i>Melilotus officinalis</i> | 0.4 |
| Rocky Mountain penstemon | <i>Penstemon strictus</i> | .4 |
| Small Burnet | <i>Sanguisorba minor</i> | 1.1 |
| Mountain Big Sagebrush | <i>Artemesia Tridentata</i> <i>vaseyana</i> | 0.1 |
| Serviceberry | <i>Amelnachier alnifolia</i> | .8 |
| Forage kochia | <i>Kochia prostrate</i> | .4 |
| Bitterbrush | <i>Purshia tridenta</i> | 1.0 |
| | Total Rate to be Seeded | 10.1 |

Seeding Method

All disturbed areas excepting the steep slopes between benches will be seeded using a range-type drill seeder.

Fertilization

Prior to spreading any topsoil or topdressing, stockpiles will be tested for organic matter, Nitrogen, Phosphorus, and Potassium. If these levels are low, 10 tons of composted manure per acre will be applied to the soil or topsoil substitute after it is spread. Soil amendment quantities will be approved by DOGM prior to application.

Other Re-vegetation Procedures

None.

R647-4-112 Variance

No variances are proposed with this application.

R647-4-113 Surety

The reclamation surety calculations are contained in Appendix F. A summary of the estimated costs of reclamation included below.

| | |
|--|--------------|
| 1. Demolition and removal of structures | \$82,270.00 |
| 2. Backfilling, grading, and contouring | \$158,065.00 |
| 3. Revegetation (preparation, seeding, mulching) | \$80,000.00 |
| 4. SUBTOTAL DIRECT COST | \$320,335.00 |
| 5. Mob/Demob | \$32,034.00 |
| 6. Contingency | \$16,017.00 |
| 7. Engineering Redesign | \$8,008.00 |
| 8. Main office Expense | \$21,783.00 |
| 9. Project Management Fee | \$8,008.00 |
| 10. SUBTOTAL INDIRECT COST | \$85,850.00 |
| 11. Escalation | \$9,572.00 |
| 12. Reclamation Costs Escalated | \$415,757.00 |
| 13. Bond Amount for 64 acre disturbance (rounded to nearest \$1,000) | \$416,000.00 |

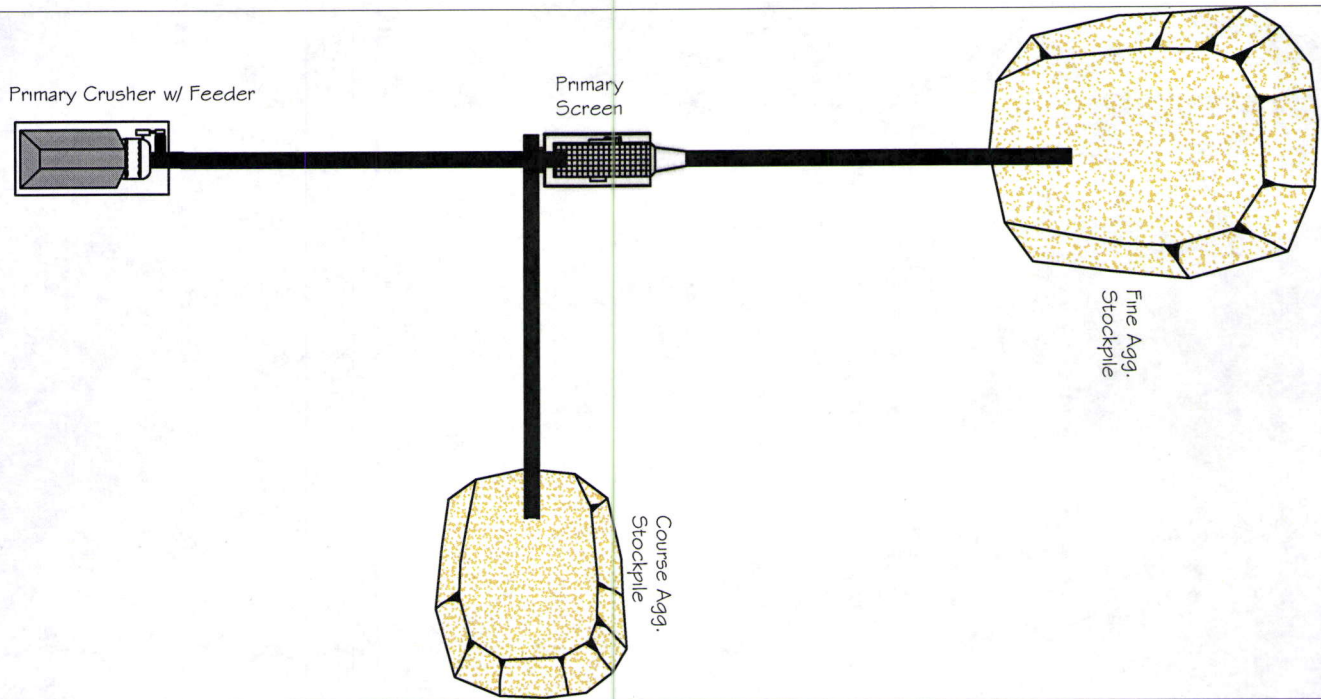
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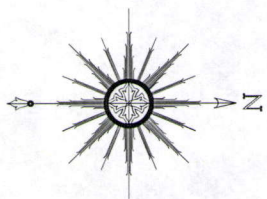
Utah Division of Water Rights, 2007. Water Right Record Information. Available online at: <http://www.waterrights.utah.gov/wrinfo/query.asp> Accessed October 2008

Sample Crusher Setup #2



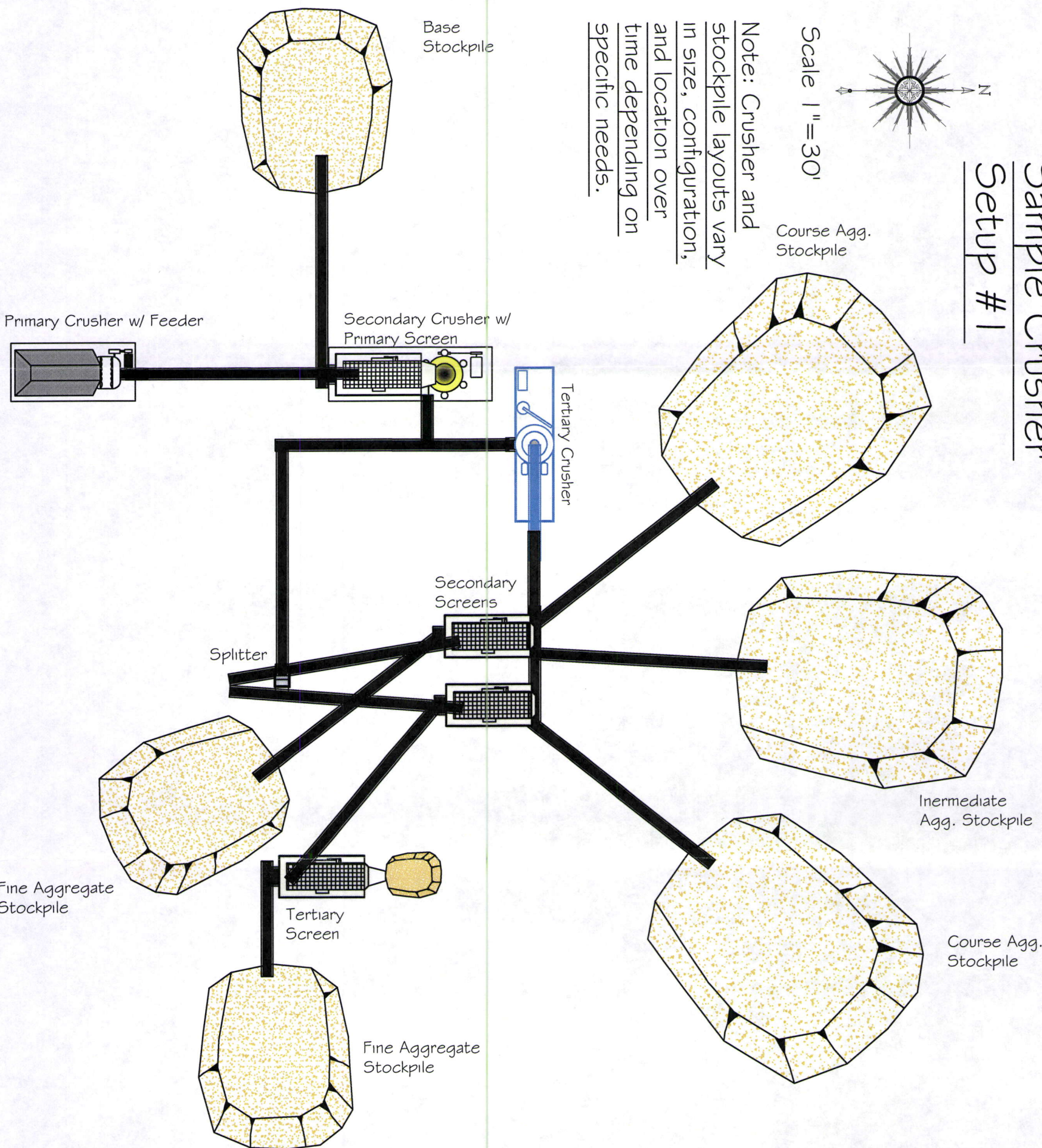
Scale 1"=40'

Sample Crusher Setup #1



Scale 1"=30'

Note: Crusher and stockpile layouts vary in size, configuration, and location over time depending on specific needs.



Drawn: B SUMSION
Checked: BSI/CC
Approved:
Date: 4-6-10
Dwg. No.

TITLE: Possible Crusher & Stockpile Configuration
ISSUED FOR INTERNAL REVIEW
Revision: 00

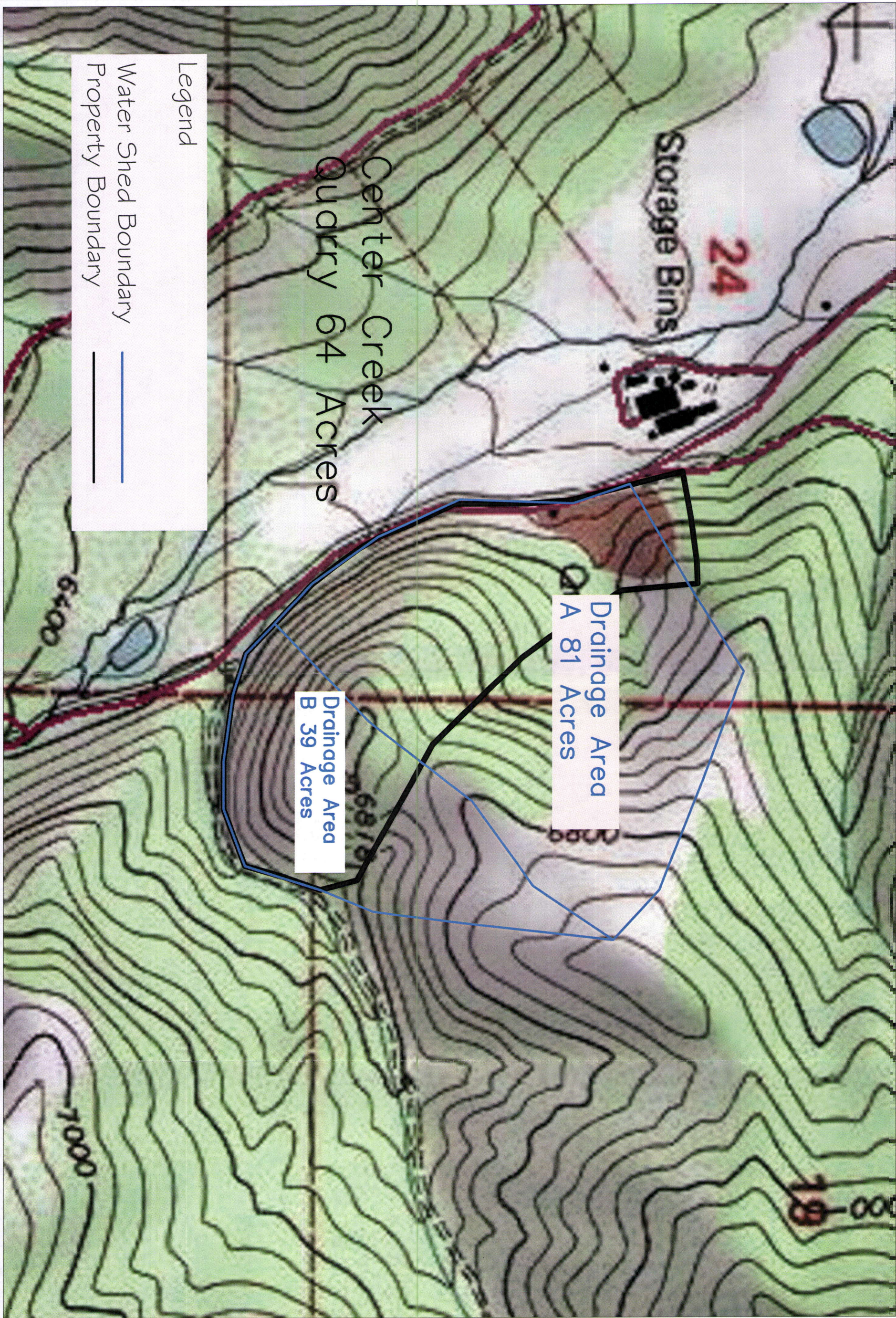
Engineer:

| | | | |
|-----|-------|--------------|-----|
| NO. | DATE: | DESCRIPTION: | BY: |
| | | | |
| | | | |
| | | | |

Geneva Rock Products, Inc.
Center Creek DOGM NOI
Figure 10



Geneva Rock Products, Inc.
1565 West 400 North
Orem, Utah 84057
801-765-7800



Drawn: B SUMSION
Checked: BS/CC
Approved:
Date: 4-15-10
Dwg. No.

TITLE: Center Creek Quarry
DOGM NOI
Figure 11

ISSUED FOR INTERNAL REVIEW

Revision: 00

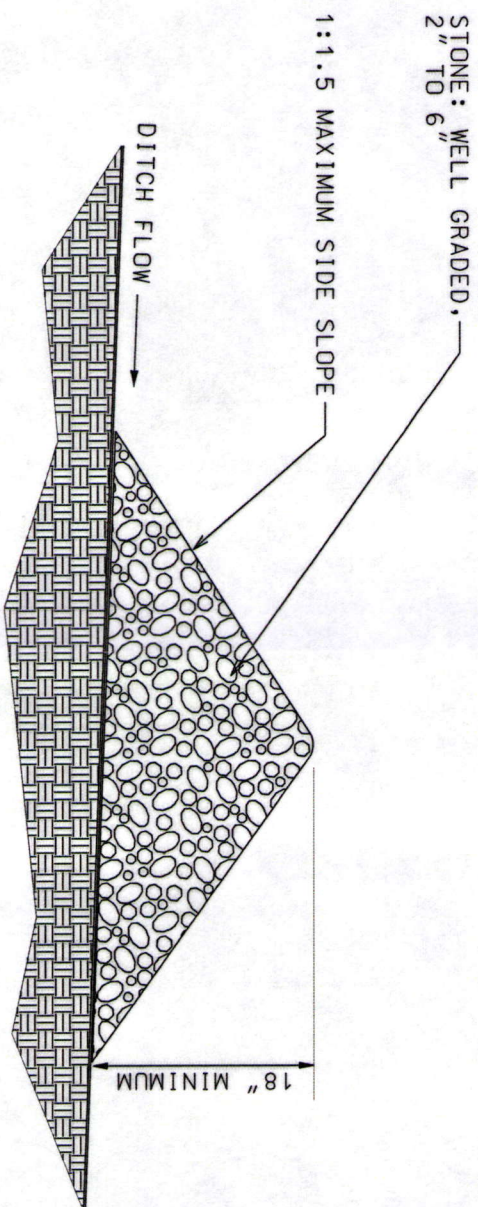
Engineer:

| | | | |
|-----|-------|--------------|-----|
| | | | |
| | | | |
| | | | |
| NO. | DATE: | DESCRIPTION: | BY: |

Geneva Rock Center Creek Quarry
Watershed Map

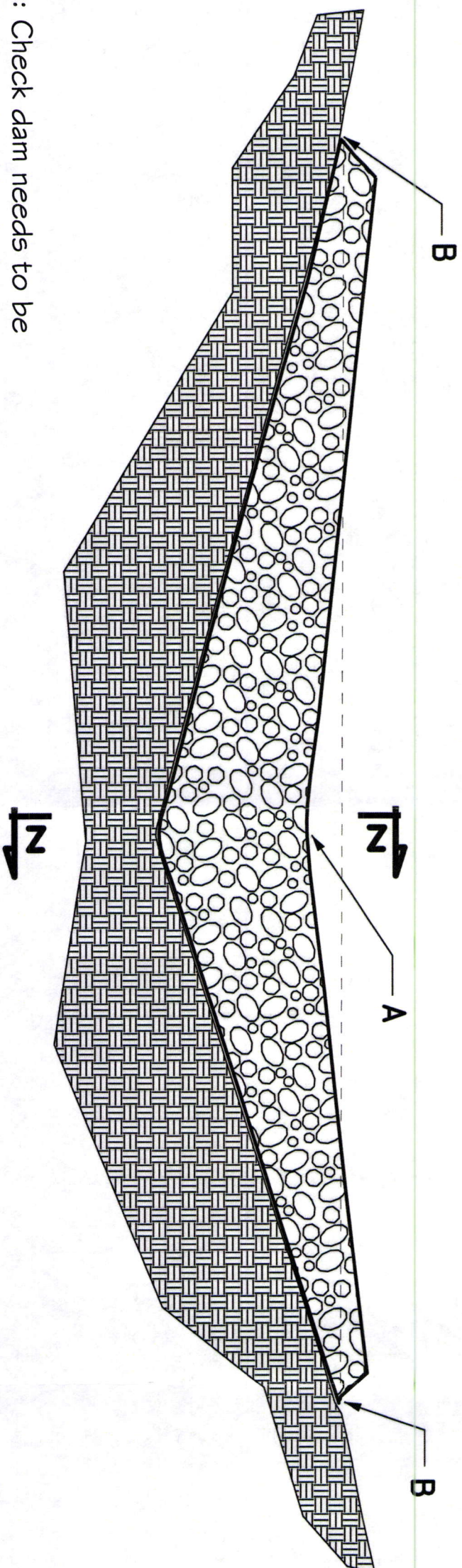


Geneva Rock Products, Inc.
1556 West 400 North
Orem, Utah 84057
801-765-7800



SECTION Z - Z

CONSTRUCT THE CHECK DAM SO THAT POINT "A" IS A MINIMUM OF 4" LOWER THAN POINT "B".



Note: Check dam needs to be keyed into natural bank during installation.

STONE CHECK DAM

Bonding Calculations

Direct Costs

| | |
|----------------------------------|---------------------|
| Subtotal Demolition and Removal | \$82,270.00 |
| Subtotal Backfilling and Grading | \$158,065.00 |
| Subtotal Revegetation | \$80,000.00 |
| Direct Costs | <u>\$320,335.00</u> |

Indirect Costs

| | | |
|-------------------------|-------------|-------|
| Mob/Demob | \$32,034.00 | 10.0% |
| Contingency | \$16,017.00 | 5.0% |
| Engineering Redesign | \$8,008.00 | 2.5% |
| Main Office Expense | \$21,783.00 | 6.8% |
| Project Mainagement Fee | \$8,008.00 | 2.5% |
| Subtotal Indirect Costs | \$85,850.00 | 26.8% |

| | |
|-------------------------------|--------------|
| Total Cost base on 2009 Costs | \$406,185.00 |
|-------------------------------|--------------|

| | |
|-------------------|------------|
| Number of years | 5 |
| Escalation factor | 0.013 |
| Escalation | \$9,572.00 |

| | |
|----------------------------|--------------|
| Reclamation Cost Escalated | \$415,757.00 |
|----------------------------|--------------|

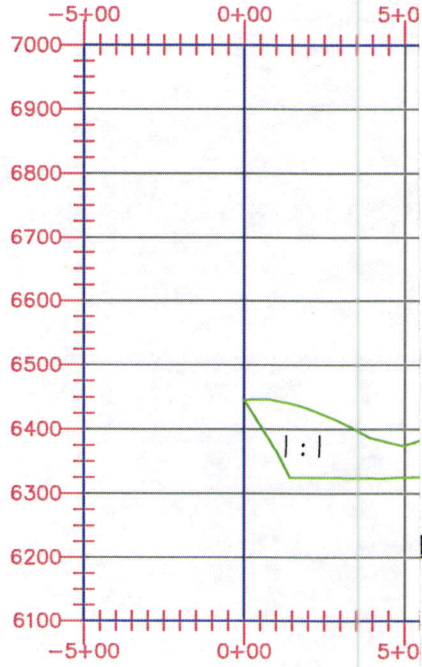
| | |
|--|--------------|
| Bond Amount (rounded to nearest \$1,000) 2014 Dollars on 64-Acres Bonded Area | \$416,000.00 |
|--|--------------|

Posted Bond

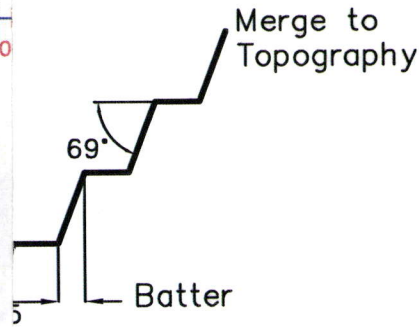
| | |
|---|--------|
| Difference Between Cost Estimate and Bond | \$0.00 |
| Percent Difference | |

| Ref. | Description | Materials | Means Reference Number | Unit Cost | /Unit | Length | Width | Height | Diameter | Area | Volume | Weight | Density | Time | Number | Unit | Swell Factor | Quantity | Unit | Cost |
|------|---|-----------|------------------------|-----------|-------|--------|-------|--------|----------|------|--------|--------|---------|------|--------|------|--------------|----------|------|------|
| | SCALE HOUSE & SCALE FOOTINGS | | | | | | | | | | | | | | | | | | | |
| | Deduct 50% no interior walls | | | | | | | | | | | | | | | | | | | |
| | Structure's Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Structure's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Rubble's Weight (exclude steel) | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel Drive | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Non Steel | | | | | | | | | | | | | | | | | | | |
| | Steel's Weight | | | | | | | | | | | | | | | | | | | |
| | Truck's Capacity | | | | | | | | | | | | | | | | | | | |
| | Haulage | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel Truck Drive | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost Steel | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Equipment's Disposal Cost | | | | | | | | | | | | | | | | | | | |
| | Dismantling Cost | | | | | | | | | | | | | | | | | | | |
| | Equipment's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Costs | | | | | | | | | | | | | | | | | | | |
| | Transport Costs | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Concrete Demolition | | | | | | | | | | | | | | | | | | | |
| | Demolition Cost | | | | | | | | | | | | | | | | | | | |
| | Concrete's Vol. Demolished | | | | | | | | | | | | | | | | | | | |
| | Loading Cost | | | | | | | | | | | | | | | | | | | |
| | Transportation Cost | | | | | | | | | | | | | | | | | | | |
| | Disposal Costs | | | | | | | | | | | | | | | | | | | |
| | Subtotal | | | | | | | | | | | | | | | | | | | |
| | Total | | | | | | | | | | | | | | | | | | | |

Elevation



ENCH DETAIL



Elevation



Geneva Rock Products, Inc.
1556 West 400 North
Orem, Utah 84057
801-765-7800

Geneva Rock Center Creek Quarry
X-Sections & Benching Detail

Engineer:

Center Creek Quarry
DOGM NOI
Figure 6

Revision:
00

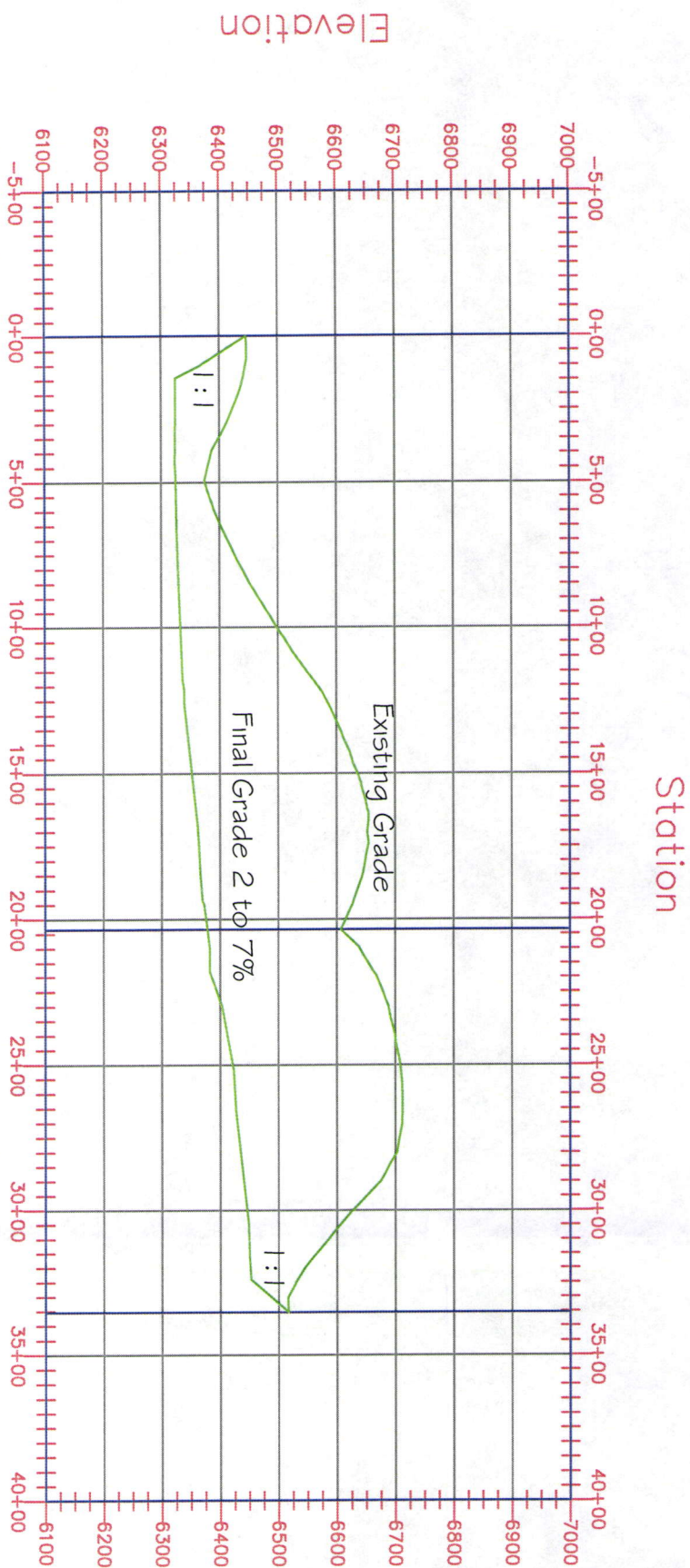
TITLE:

ISSUED FOR INTERNAL REVIEW

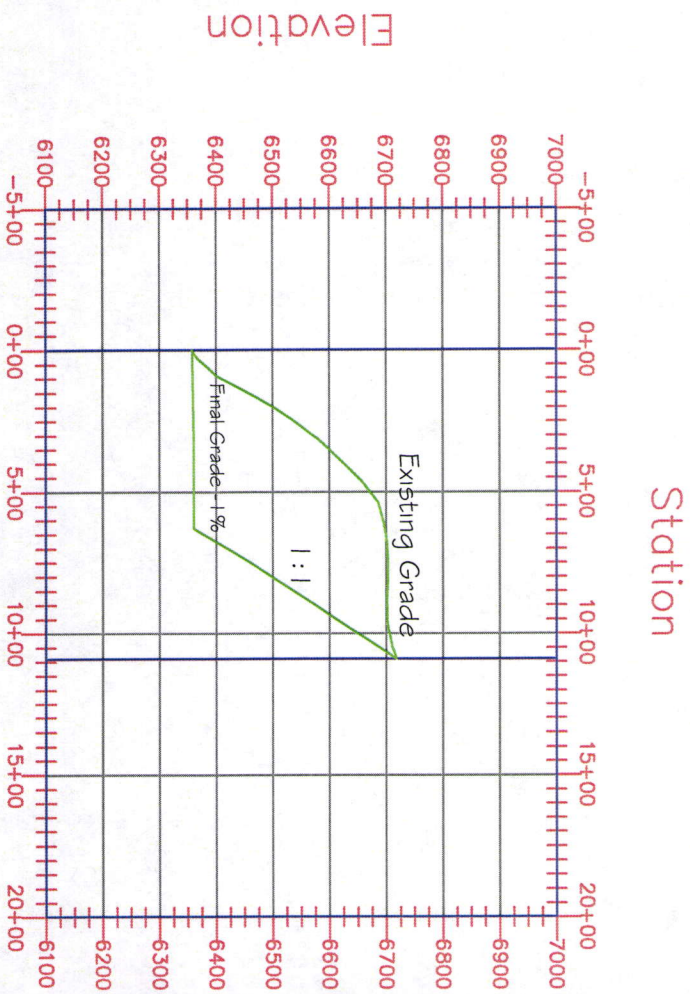
Drawn: B SUMSON
Checked: BS/CC
Approved:
Date: 12-17-08
Dwg. No.

NO. DATE DESCRIPTION BY:

Profile A-A' PROFILE



Profile B-B' PROFILE



HIGHWALL-BENCH DETAIL

